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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,613	04/16/2004	Seth A. Miller	TI-36350 (032350.B601)	1325

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TEXAS INSTRUMENTS INCORPORATED  
P O BOX 655474, M/S 3999  
DALLAS, TX 75265

EXAMINER
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CAMERON, ERMA C

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/826,613

Applicant(s)

MILLER, SETH A.

Examiner

Erma Cameron

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 4, 12, 13, 16, 24 and 26 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The examiner cannot find where in the specification the following terms and phrases are used:

- a) "modifying the coating" as in claims 4 and 16
- b) "an alcohol having a general formula of OR<sup>2</sup>" as in claims 12 and 24 and 26
- c) "wherein R1 and R2 form a coating: as in claim 13.

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3. Claims 12, 24 and 26 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an alcohol that is long chain, such as the examples at 9:29-31 and at 10:5-6, does not reasonably provide enablement for any alcohol. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

It appears that long chain alcohols are needed in the claimed invention. If short chain alcohols were functional in the claimed invention, TEOS alone could be used in the process, because the molecule ends with an ethanol group.

4. Claims 12, 24 and 26 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method in which the alcohol is provided in large excess, does not reasonably provide enablement for a method in which the alcohol is not provided in large excess. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

See 8:10-20. It appears that providing the alcohol in large excess is a necessary condition to drive the reaction when an alcohol is used as the nucleophile.

5. Claims 1-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not

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described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The following are not well described and/or defined in the specification:

- a) 5:7-8 - “a nucleophile of the same general class”. It is not clear what is meant by “general class”, and what would fit into these classes. For instance, if the active species is an alcohol, does the nucleophile have to be an alcohol as well, or could the nucleophile fit into an even broader class?
- b) 7:29-30 - “ternary or ore complicated compounds and their oxides”. The examiner assumes that more is meant. But it is not clear what compounds are meant by “ternary” or “more complicated compounds”. In addition, it is not clear what the antecedent basis is for “their oxides” - is it all the preceding compounds, or just “complicated compounds”?
- c) 7:18+21, 9:6-7, 20:6+8 - n and m and D have not been defined.
- d) 9:31 and 10:6 - the examiner cannot find “dodecadieneol” in CAS Registry or in standard chemical dictionaries. It is therefore not clear what this compound is.

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e) In the Figures, it is not clear if the O's above the surface are supposed to be oxygen atoms, and if so, how they are attached to the surface.

f) At 1:7 and 5:6, the applicant refers to "oxide surfaces", but elsewhere in the specification, such as 5:3, the surface is referred to as "oxidized". It is not clear if these are the same or different.

g) It is not clear what is meant by "form a new exposed surface" (at 5:7, for example). It is not clear what is exposed, or where the exposed groups are the Figures 1 and 2.

h) 8:2-6 - "esters such as -OCH<sub>3</sub>" is confusing, in that this structure is not an ester. An ester contains an acid group.

i) 10:18-11:18 - It is not clear how the coating can be considered a monolayer when two separate species, the original active species, and the nucleophilic molecule are used to build the coating in two steps.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claim 1, line 6; claim 13, line 7; claim 25, line 5: it is not clear what the exposed surface is, what is exposed, and how the exposed surface is created.

b) Claim 1, line 14; claim 13, line 15; claim 25, line 11: "same chemical class" is vague in that it is not defined what belongs or doesn't belong in a "chemical class".

c) Claims 1, 13 and 15: D has not been defined, and is therefore vague and indefinite.

d) Claims 5, 17: It is not clear how the coating can be considered a monolayer when two separate species, the original active species, and the nucleophilic molecule are used to build the coating in two steps.

e) Claims 7, 9, 19 and 21: the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

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g) Claims 7 and 19: “ternary or (m)or complicated compounds” has not been defined, and is therefore vague. Are the applicants claiming that any “complicated compound” or any “ternary” compound is useful in the claimed invention

h) Claims 7 and 19: it is not clear what the antecedent basis for “their” is. Is this referring to any of the preceding species or only the term “complicated compounds”?

i) Claims 8+ 12; 20+24: The TEOS of claims 12 and 24 does not belong to any of species of claims 8 and 20.

j) Claims 4 and 16: “modifying the coating” is vague in that no specific modification is claimed.

k) Claims 12, 24 and 26:  $OR^2$  does not appear to be an alcohol as claimed, as it lacks an OH group. In addition, oxygen is a divalent atom, but only one bond to the oxygen is shown.

l) Claims 10 and 22: “normal” has not been defined and is therefore vague and indefinite.



*Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ogawa et al (US2001/0031364).

'364 teaches applying TEOS [0082] or other alkoxysilanes to substrates such as glass, metal, ceramic and the other materials of [0084], followed by a fluoroalkyl trimethoxysilane as in [0145]. The trimethoxy groups inherently hydrolyze to an alcohol, and react with the TEOS on the substrate to form a water repellent fluorine-containing coating [0136] [0153]. The methanol is removed by heating to 120-150 degrees C [0146], thus meeting the limitations of claims 10 and 22. If the applicant considers their coating, formed in a two-step process, to be a monolayer, then the coating of '364 may also be considered a monolayer, as it is formed in the same two step process.

Regarding claims 4 and 16, "modifying" is so vague that it reads on contacting the coating by hand or water.

10. Claims 1-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by EP 1153740.

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'740 teaches applying TEOS [0089] (see Figures) or other alkoxysilanes to substrates such as glass, metal, ceramic and the other materials of [0104], followed by a fluoroalkyl trimethoxysilane as in [0130]. The trimethoxy groups inherently hydrolyze to an alcohol, and react with the TEOS on the substrate to form a water repellent fluorine-containing coating (see Abstract). The coating is heated after it is created [0114], thus meeting the limitations of claims 10 and 22. If the applicant considers their coating, formed in a two-step process, to be a monolayer, then the coating of '740 may also be considered a monolayer, as it is formed in the same two step process.

Regarding claims 4 and 16, "modifying" is so vague that it reads on contacting the coating by hand or water.

### *Claim Objections*

11. Claims 7 and 19 are objected to because of the following informalities: typo - ore. Appropriate correction is required.

### *Specification*

12. The disclosure is objected to because of the following informalities: typo at 7:29 - ore. Appropriate correction is required.

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***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erma Cameron whose telephone number is 571-272-1416. The examiner can normally be reached on 8:30-6:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**ERMA CAMERON**  
**PRIMARY EXAMINER**

Erma Cameron  
Primary Examiner  
Art Unit 1762

August 2, 2005